

PATENT SPECIFICATION

1,057,022

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DRAWINGS ATTACHED.

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COMPLETE SPECIFICATION.

Improvements in or relating to the Wrapping of Articles.

We, THE MOLINS ORGANISATION LIMITED, (formerly known as Molins Machine Company Limited), a British Company, of 2 Evelyn Street, Deptford, London, S.E.8., do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns improvements in or relating to the wrapping of articles, such as packages containing cigarettes, and to methods of and apparatus for producing narrow strips of material, known as tear strips, to be used in the wrapping of such articles.

Articles, such as packages containing cigarettes, are frequently wrapped in wrapping material, such as that known under the Registered Trade Mark "Cellophane", and there is often provided a tear-strip, which is usually arranged to lie on the inside of the wrapper with one end of the tear-strip projecting so that it can be pulled to tear the wrapper, whereby the article can readily be divested of its wrapping. The tear-strip is often of the same material as the wrapper and it is desirable that at least the projecting end of the tear-strip should be easily distinguishable so that it can readily be found and grasped.

According to the present invention there is provided a method of producing tear strips for the wrappings of articles, which method comprises the steps of unwinding a continuous web of tear strip material from a spool, feeding the continuous web in the direction of its length, cutting off from the web successive transverse tear strips, and prior to the cutting-off operation, colouring a side margin of the web a

colour different from that of the remainder of the web of tear strip material, so that each tear strip has an end of a colour different from the remainder of the tear strip. Each tear-strip can then be included in the wrapping of an article so that the said end of the tear-strip projects from the wrapping and can readily be found.

Further according to the present invention there is provided apparatus for producing tear strips to be applied to the wrappings of articles, comprising means to feed in the direction of its length a continuous web of tear strip material, means to apply coloured matter to a side margin of the web and means to sever from the web successive transverse strips each to constitute a tear strip having an end carrying the colouring matter, and means for applying the tear strips to wrapping material with the said end of each tear strip extending therefrom.

The means to apply coloured matter to the side margin of the web may comprise an inking device, or feeding means to feed a continuous strip of coloured material, and means to cause the strip to adhere to the side margin of the web.

The tear-strips may, for example, be applied to the web of wrapping material in a manner as described in copending British Patent Application No. 18013/62, Serial No. 1057021 the wrapper web then being severed to produce individual wrappers, which are wrapped around articles such as packages containing cigarettes.

Two embodiments of apparatus in accordance with the present invention will now be described, by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a schematic view of a first

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embodiment of apparatus for producing tear-strips and for applying the strips to wrapping material being cut into wrapping blanks.

5 Figure 2 is a schematic plan view of part of the apparatus shown in Figure 1.

Figure 3 shows a package of cigarettes in relation to a wrapping blank.

10 Figure 4 is a view similar to Figure 3 showing a different type of cigarette package, with a tear-strip in a different position.

Figure 5 is a perspective view of a wrapped package containing cigarettes, in which the wrapping includes a tear-strip and

15 Figure 6 is a schematic view corresponding to part of Figure 1 of a second embodiment of apparatus for producing tear-strips.

20 Referring to Figure 1, a web W of colourless and transparent wrapping material known under the Registered Trade Mark "Cellophane" passes about a guide roller 1, in conjunction with which a braking pad 2 acts to tension the web W, and about a driven roller 3. A ridge 4, running axially along the cylindrical face of the roller 3, forces the web W against a wick 5 which is in contact with suitable solvent, so that a stream of solvent is applied across the width of the web W at selected positions, the peripheral speed of ridge 4 being the same as the linear speed of the web.

35 After leaving the roller 3 the web W passes about a guide roller 6, between an idle roller 7 and a segmental roller 7a, and then between feed rollers 8 and 9 to a rotary cutting device 10 which cuts off wrapping blanks WB. The purpose of the segmental roller 7a is described in co-pending cognate British Patent Applications Nos. 21434/61 and 6983/62 (now Serial No. 1,011,722) and need not be described herein, the mechanism so far described being similar to the mechanism described in that application.

40 A continuous web T of tear-strip material which is also colourless and transparent and known under the Registered Trade Mark "Cellophane" and whose width is equal to the length of tear-strip to be applied, is intermittently fed by two feed rollers 11 and 12 past a fixed knife 13. The intermittent feed of the web T is such that a strip TS, of length equal to the desired width of a tear-strip is fed past the knife 13 just before the cutting edge of a movable knife 14, fixed on a driven rotating member 15, co-acts with the cutting edge of the fixed knife 13.

60 A transfer member 16 having a longitudinal surface 17, through which suction is applied is mounted on a shaft 18 and arranged to oscillate about the axis of the latter (which is perpendicular to the directions of feed of the webs W and T) to move

the surface 17 from a position adjacent to the fixed knife 13 to a position adjacent to the wrapper web W, i.e. from the position shown in full line in Figure 1 to the position shown in broken line in that figure. Thus the severed strip TS can be carried on the surface 17, and moved in an arcuate path (shown in dot-and-dash line in Figure 1) into contact with the web W to be applied thereacross. As can be seen in Figure 1 the path of the web W intersects the path of the strip TS so that the latter can be held in contact with, and moved at the same speed as the web by the member 16 for a period of time corresponding to the interference of the paths, the web W being raised slightly during that time. The member 16 is oscillated in timed relationship with the operation of the movable knife 14 so as to receive the strip TS as the latter is cut from the web T, and to move it anti-clockwise, as viewed in Figure 1 and into contact with the web W to which it is joined during the said period of time, the member 16 then swinging clockwise to return to its position adjacent the knife 13 to receive a further severed strip. The strip TS is applied to the web W at a position at which a stream of solvent has been applied by the wick 5.

95 Positioned above the shaft 18 is a rotatable shaft 19 on which is mounted an element comprising a support 20 carrying a heating strip in the form of a flat band 21. Rotation of the shaft 19 would cause the band 21, if free to do so, to follow the path indicated in dot-and-dash line, which interferes with the path of the surface 17. However, the band 21 is resiliently mounted on the support 20 so as to be movable radially relatively to the shaft 19. The shaft 19 is driven to continuously rotate the support 20 (in the direction shown by the arrow) in timed relationship with the movement of the member 16, so that the severed strip TS is held in contact with the web W between the surface 17 and the band 21 for the said period of time, the interference of the paths being taken up by radial movement of the band 21. Thus the band 21 provides a moving counter surface against which the web W can be pressed and also heats the material to join the strip TS to the web W.

120 The apparatus as so far described is the same as that described in more detail in co-pending British Patent Application No. 18013/62, Serial No. 1057021.

The web T is unwound and is fed lengthwise from a spool 22.

125 Referring also to Figure 2, means to apply coloured matter in the form of an inking device comprising an ink container 24 having an outlet tube 25 in which is provided a projecting wick 26, are posi-

tioned above a roller 23. The inking device is located relatively to the web T so that the lower end of the wick 26 contacts a side margin 27 of the web (the left-hand side margin as viewed in Figure 2). As the web T is fed lengthwise over the roller 23, the wick 26 transfers ink to the side margin 27 so that the side margin becomes coloured, in the present arrangement red, and is readily distinguishable from the colourless and transparent remainder of the web.

The web T having the distinguishable portion 27, is fed by the feed rollers 11 and 12 to the rotatable knife 14 arranged to coact with the fixed knife 13 as described above. The cutting means operates in timed relationship with the feed of the web T to periodically cut the web T perpendicularly to its length, and to sever therefrom tear-strips so that the side portion 27 of the web forms an end part 28 of a tear-strip TS (Figure 2), the length of material severed from the web being equal to the desired width of a tear-strip. The end part 28 of each tear-strip TS so produced is thus readily distinguishable from the remainder of the tear-strip and also readily distinguishable from the material of the web W.

Each tear-strip T is applied to the wrapper web W so that the part 28 projects therefrom. The wrapper web W is then severed into individual wrapper blanks WB, each of which is wrapped around a package so that the part 28 of the tear-strip TS projects.

Figure 3 shows a wrapper blank WB with a tear-strip TS applied to it as produced by the apparatus of Figure 1, and also shows a "soft pack" of cigarettes about which the blank is to be wrapped.

Similarly, Figure 4 shows a wrapper blank with a tear-strip TS applied thereto and shows a "hinged lid" or "flip-top" package of cigarettes about which the blank is to be wrapped.

The tear-strip is in a different position on the wrapper blanks in Figures 2 and 3 and this different positioning is achieved by a different positioning of the tear-strip on the continuous web W in Figure 1 relative to the cutting-off of the wrapper blanks WB by the knife 10.

A wrapped package is shown in Figure 5. The tear-strip strip T lies on the inside of the wrapper, and the part 28 projects as shown. When it is desired to divest the package of its wrapping, the end part 28 of the tear-strip TS can readily be found, on account of its distinguishing colour, and can be pulled to tear the wrapper along the line of the tear-strip around the package.

In Figure 5 TS1 shows the position of the tear-strip after the wrapper blank has been wrapped around the package in Figure 3.

TS2 shows similarly the position of the tear-strip for the package of Figure 4.

It will be appreciated that the colour chosen for the end 28 of the tear-strips should be distinguishable not only from the remainder of the tear-strip but also from the wrapper itself.

In the second embodiment of the invention illustrated in Figure 6, instead of the coloured matter being applied by an inking device, a continuous strip S of coloured material is fed from a reel 29 at the same speed as the rate of feed of the web T of tear-strip material and along the side margin of the web T. The strip S is material known under the Registered Trade Mark "Sellotape" and has a self-adhesive surface. This adhesive surface is arranged to face the web T. The strip S is pressed on to the side margin of the web T by a pair of pressure rollers 30 and 31. After leaving the rollers 30 and 31 the web with a coloured side margin formed by the adhering strip S passes to the rollers 11 and 12 and is thereafter treated as in Figure 1 to produce tear-strips with a coloured end which are each united with a wrapper blank.

Further, it will be appreciated that, if desired, the web T of tear-strip material could be precoloured, i.e. the web T could already have the distinguishable portion 27 before it is unwound from the spool 22. In such a case the colouring means could be omitted from the present apparatus, but of course, similar colouring means could be used for precolouring the distinguishable portion 27 of the web T.

WHAT WE CLAIM IS:—

1. A method of producing tear strips for the wrappings of articles, which method comprises the steps of unwinding a continuous web of tear strip material from a spool, feeding the continuous web in the direction of its length, cutting off from the web successive transverse tear strips, and prior to the cutting-off operation, colouring a side margin of the web a colour different from that of the remainder of the web of tear strip material, so that each tear strip has an end of a colour different from the remainder of the tear strip.

2. A method as claimed in Claim 1 wherein the side margin of the web is coloured by the application thereto of a coloured ink.

3. A method as claimed in Claim 1 wherein the side margin of the web is coloured by causing a continuous strip of coloured material to adhere to the side margin.

4. A method as claimed in Claim 1 or Claim 2 or Claim 3 wherein the web of tear strip material is fed lengthwise as it is unwound from a spool and the colouring

operation is carried out whilst the web is being fed lengthwise.

5 5. A method as claimed in Claim 1 or Claim 2 or Claim 3 wherein the web of tear strip material is fed lengthwise as it is unwound from a spool and the colouring operation is carried out before the web is wound on to the spool.

10 6. Apparatus for producing tear strips to be applied to the wrappings of articles, comprising means to feed in the direction of its length a continuous web of tear strip material, means to apply coloured matter to a side margin of the web, and means to sever from the web successive transverse strips each to constitute a tear strip having an end carrying the colouring matter, and means for applying the tear strips to wrapping material with the said end of each tear strip extending therefrom.

20 7. Apparatus as claimed in Claim 6 wherein the means to apply coloured matter to the side margin of the web comprises an inking device to colour the said side margin.

25 8. Apparatus as claimed in Claim 7 wherein the inking device comprises an ink container and a wick projecting from the container to contact the side margin of the web to apply ink thereto.

30 9. Apparatus as claimed in Claim 6 wherein the means to apply coloured matter to a side margin of the web comprises means to feed in the direction of, and at the same rate as, the feeding of the web

a continuous strip of coloured material, and means to cause it to adhere to the said side margin.

10. Apparatus as claimed in Claim 9 wherein the continuous strip is pressed into contact with the web to cause it to adhere thereto.

11. A method of producing tear strips having an end of a colour different from that of the remainder of the strip substantially as herein described with reference to Figures 1 and 2 of the accompanying drawings.

12. A method of producing tear strips having an end of a colour different from that of the remainder of the strip substantially as herein described with reference to Figure 6 of the accompanying drawings.

13. Apparatus for producing tear strips and constructed, arranged and adapted to operate substantially as herein described with reference to, and as illustrated in, Figures 1 and 2 of the accompanying drawings.

14. Apparatus for producing tear strips and constructed, arranged and adapted to operate substantially as herein described with reference to, and as illustrated in, Figure 6 of the accompanying drawings.

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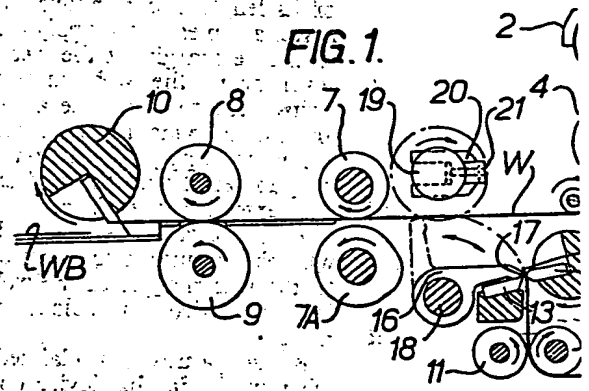
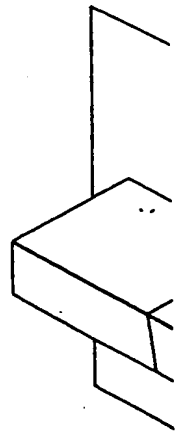
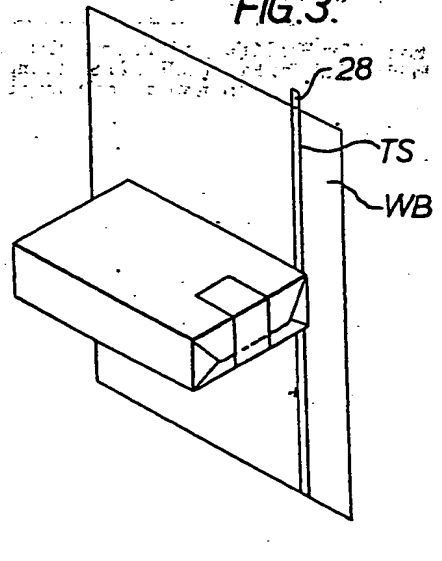


FIG. 3.



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COMPLETE SPECIFICATION

2 SHEETS

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Sheet 1

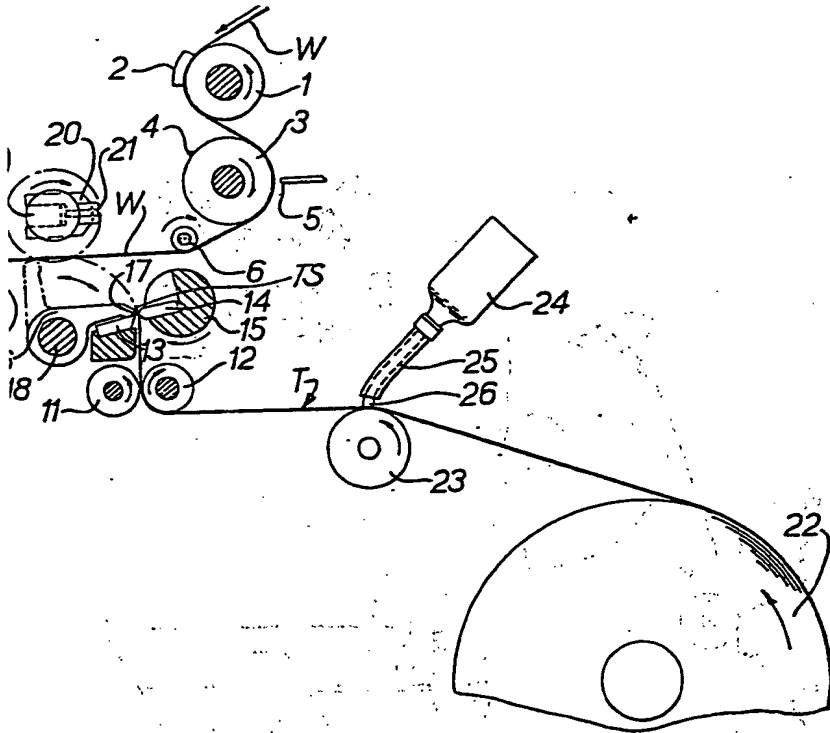


FIG. 4.

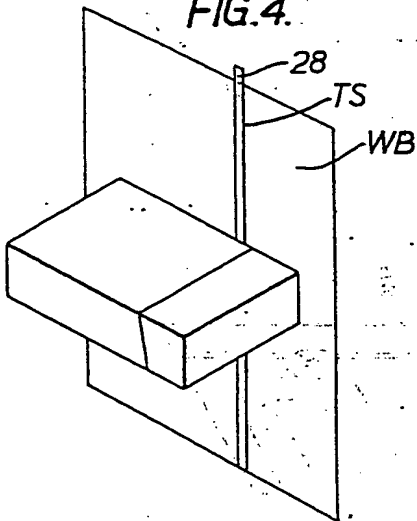
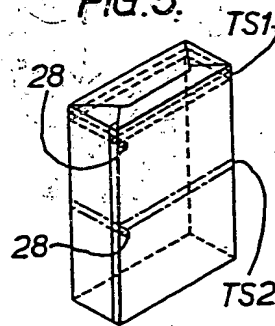
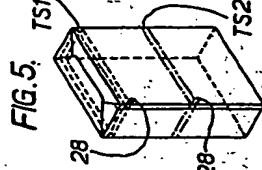
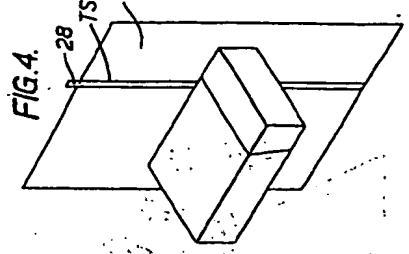
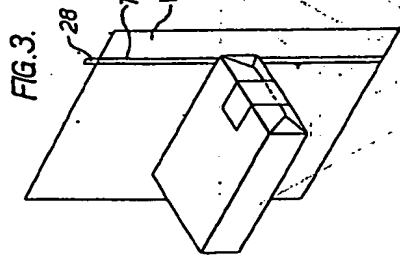
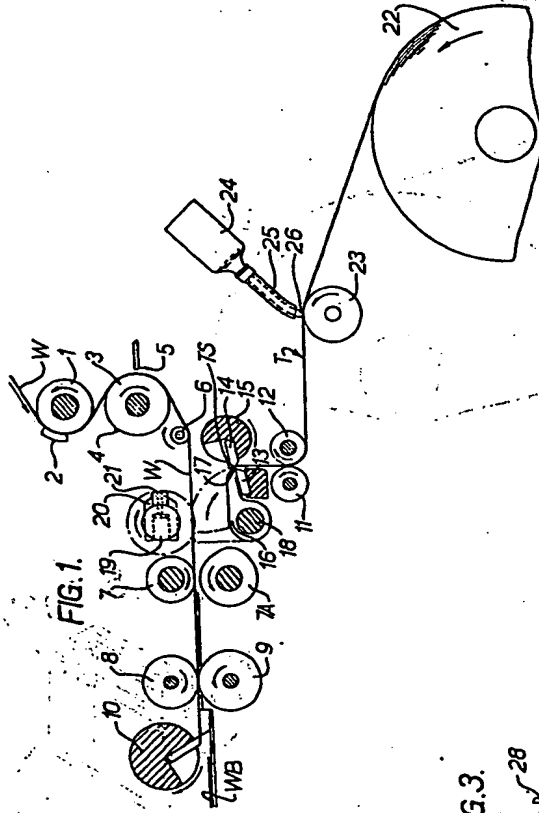


FIG. 5.





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COMPLETE SPECIFICATION

2 SHEETS This drawing is a reproduction of
the Original on a reduced scale
Sheet 2

